

ABSTRACT OF THE DISCLOSURE

The invention relates to a gas for removing deposits by a gas-solid reaction. This gas includes a hypofluorite that is defined as being a compound having at least one OF group in the molecule. Various deposits can be removed by the gas, and the gas can easily be made unharmed on the global environment after the removal of the deposits, due to the use of a hypofluorite. The gas may be a cleaning gas for cleaning, for example, the inside of an apparatus for producing semiconductor devices. This cleaning gas comprises 1-100 volume % of the hypofluorite. Alternatively, the gas of the invention may be an etching gas for removing an unwanted portion of a film deposited on a substrate. The unwanted portion can be removed by this etching gas as precisely as originally designed, due to the use of a hypofluorite. The invention further relates to a method for removing a deposit by the gas. This method includes the step (a) bringing the gas into contact with the deposit, thereby to remove the deposit by a gas-solid reaction.